Application No. 10/664,218
Amendment dated November 30, 2007
Response to Office Action of May 30, 2007

Atty. Docket No. 42P16281
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TC/A.U. 2616

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method, comprising:

transmitting a plurality of symbols to a remote device;

receiving, from the remote device, channel state information of a communication channel comprising a channel transfer function estimate at least a power allocation instruction and a modulation type instruction corresponding to the plurality of symbols transmitted to the remote device;

rescaling subcarrier power of a signal based on the channel state information power allocation instruction, wherein rescaling subcarrier power comprises at least determining which subcarriers, if any, are to be turned off; [[and]]

adjusting a modulation rate based on the channel state information modulation type instruction;

calculating power values and modulation rates for active subcarriers; and

transmitting a subsequent plurality of symbols utilizing the calculated power values and modulation rates.

2. (Original) A method as claimed in claim 1, wherein said rescaling and said adjusting maintain a constant bit error rate for at least one or more subcarriers of the signal.

3. (Original) A method as claimed in claim 1, wherein said rescaling includes turning off subcarriers of the signal with lower gain values.

4. (Original) A method as claimed in claim 1, wherein the modulation is trellis coded modulation.

5. (Original) A method as claimed in claim 1, wherein said adjusting includes selecting a modulation for a subcarrier when a signal-to-noise ratio per subcarrier of the communication channel is greater than a predetermined value, and selecting another modulation when the signal-to-noise ratio per subcarrier of the communication channel is less than a predetermined value.

6. (Currently Amended) An article comprising:

a storage medium having stored thereon instructions that, when executed by a computing platform, result in signal modulation adapted to a channel state by:

transmitting a plurality of symbols to a remote device;

receiving, from the remote device, channel state information of a communication channel ~~comprising a channel transfer function estimate~~ at least a power allocation instruction and a modulation type instruction corresponding to the plurality of symbols transmitted to the remote device;

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rescaling subcarrier power of a signal based on the~~channel state information~~ power allocation instruction, wherein rescaling subcarrier power comprises at least determining which subcarriers, if any, are to be turned off; [[and]]

adjusting a modulation rate based on the ~~channel state information~~ modulation type instruction;

calculating power values and modulation rates for active subcarriers; and

transmitting a subsequent plurality of symbols utilizing the calculated power values and modulation rates.

7. (Original) An article as claimed in claim 6, wherein the instructions, when executed, further result in signal modulation adapted to a channel state by maintaining a constant bit error rate for at least one or more subcarriers of the signal.

8. (Original) An article as claimed in claim 6, wherein the instructions, when executed, further result in signal modulation adapted to a channel state by turning off subcarriers of the signal with lower gain values.

9. (Original) An article as claimed in claim 6, wherein the modulation is trellis coded modulation.

10. (Original) An article as claimed in claim 6, wherein the instructions, when executed, further result in signal modulation adapted to a channel state by selecting a

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modulation   for a subcarrier when a signal-to-noise ratio per subcarrier of the communication channel is greater than a predetermined value, and by selecting another modulation when the signal-to-noise ratio per subcarrier of the communication channel is less than a predetermined value.

11. (Currently Amended) An apparatus, comprising:

a modulation encoder to encode a plurality of symbols to transmit to a remote device and to receive from the remote device channel state information including at least a modulation instruction corresponding to channel state information corresponding to transmission of the plurality of symbols and to modulate a signal at a modulation rate and type based on the modulation instruction channel state information of a communication channel, wherein the channel state information further comprises a channel transfer function estimate; and

a weighting block to receive from the remote device channel state information including at least a power allocation instruction corresponding to channel state information corresponding to transmission of the plurality of symbols and to rescale subcarrier power of the signal based on the channel state information.

12. (Original) An apparatus as claimed in claim 1, wherein said modulation encoder and said weighting block maintain a constant bit error rate for at least one or more subcarriers of the signal.

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13. (Original) An apparatus as claimed in claim 1, wherein said weighting block turns off subcarriers of the signal with lower gain values.

14. (Original) An apparatus as claimed in claim 1, wherein the modulation encoder is a trellis coded modulation encoder.

15. (Original) An apparatus as claimed in claim 1, wherein said modulation encoder selects a modulation on a subcarrier when a signal-to-noise ratio per subcarrier of the communication channel is greater than a predetermined value, and selects another modulation when the signal-to-noise ratio per subcarrier of the communication channel is less than a predetermined value.

16. (Currently Amended) An apparatus, comprising:

an orthogonal frequency division multiplexing transceiver to transmit a plurality of symbols to a remote device; and

an omnidirectional antenna to couple to said orthogonal frequency division multiplexing transceiver;

said orthogonal frequency division multiplexing transceiver including a modulation encoder to receive from the remote device via the orthogonal frequency division multiplexing transceiver channel state information including at least a modulation instruction corresponding to channel state information corresponding to transmission of the plurality of symbols and to modulate a signal at a modulation rate and type based on the modulation instruction, and a weighting block to receive from the

remote device channel state information including at least a power allocation instruction

corresponding to channel state information corresponding to transmission of the plurality

of symbols and to rescale subcarrier power of the signal based on the channel state

information, wherein the channel state information further comprises a channel transfer

function estimate.

17.   (Original)   An apparatus as claimed in claim 16, wherein said modulation

encoder and said weighting block maintain a constant bit error rate for at least one or

more subcarriers of the signal.

18.   (Original)   An apparatus as claimed in claim 16, wherein said weighting

block turns off subcarriers of the signal with lower gain values.

19.   (Original)   An apparatus as claimed in claim 16, wherein the modulation

encoder is a trellis coded modulation encoder.

20. (Original)   An apparatus as claimed in claim 16, wherein said modulation

encoder selects a modulation on a subcarrier when a signal-to-noise ratio per subcarrier

of the communication channel is greater than a predetermined value, and selects another

modulation when the signal-to-noise ratio per subcarrier of the communication channel

is less than a predetermined value.